

List of Plants

C ALPHA-PHELLANDRENE

Chemid

ALPHAPHELLANDRENE

*Unless otherwise noted all references are to Duke, James A. 1992. Handbook of phytochemical constituents of GRAS herbs and other economic plants. Boca Raton, FL. CRC Press.

Plant	Plant Part	Low PPM	High PPM	StdDev	*Reference
Abies balsamea	Plant	--	--		*
Abies alba	Leaf	5.0	7.0	-0.31	*
Achillea millefolium	Leaf	--	--		*
Acinos alpinus	Shoot	--	18.0	-0.26	Velasco-Negueruela,A., Perez-Alonso,M.J., Jiminez,S.M. and Garcia,F.M. 1993. The Volatile Constituents of Acinus alpinus (L.) Moench ssp. meridionalis (Nyman). P.W. Ball Growing in Spain. Flav. & Frag. J. 8:127-130.)
Acinos alpinus	Shoot	--	18.0	-0.26	Velasco-Negueruela,A., Perez-Alonso,M.J., Jiminez,S.M. and Garcia,F.M. 1993. The Volatile Constituents of Acinus alpinus (L.) Moench ssp. meridionalis (Nyman). P.W. Ball Growing in Spain. Flav. & Frag. J. 8:127-130.)
Agathosma betulina	Leaf Essent. Oil	--	--		*
Allium sativum var. sativum	Bulb	--	--		Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Anethum graveolens	Leaf	20.0	8025.0	5.38	*
Anethum graveolens	Seed Essent. Oil	--	--		*
Anethum graveolens	Shoot Essent. Oil	248800.0	525100.0	1.41	*
Anethum graveolens	Seed	125.0	7469.0	1.53	*
Anethum graveolens	Root Essent. Oil	--	--		*
Anethum graveolens	Essential Oil	--	--		*
Angelica archangelica	Leaf Essent. Oil	--	678000.0	1.75	*
Angelica archangelica	Root	--	--		*
Angelica archangelica	Root Essent. Oil	--	225000.0		*
Angelica archangelica	Seed Essent. Oil	--	--		*
Angelica archangelica	Fruit	--	--		*
Apium graveolens	Seed Essent. Oil	--	2000.0	-0.86	*
Apium graveolens	Fruit	--	2000.0	0.43	*
Artemisia dracunculus	Plant	--	--		*
Artemisia dracunculus	Leaf Essent. Oil	--	--		*

dracunculus	Oil				
Boswellia serrata	Resin, Exudate, Sap	--	--		Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.
Boswellia sacra	Essential Oil	--	24000.0	-0.13	*
Boswellia sacra	Resin, Exudate, Sap	--	0.6		Chiavari, G., Galletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins <i>Boswellia carterii</i> and <i>Boswellia frereana</i> (Frankincense) of Somali Origin. <i>J. Essent. Oil Res.</i> 3 (3):185-186.
Canarium indicum	Essential Oil	15100.0	37750.0	0.14	*
Capsicum annum	Fruit	--	--		*
Capsicum frutescens	Fruit	--	--		*
Carica papaya	Fruit	--	--		*
Carthamus tinctorius	Bud	--	0.01		*
Carthamus tinctorius	Leaf	--	0.01	-0.31	*
Carum carvi	Fruit	3.0	6.0	-0.57	*
Carum carvi	Seed	3.0	1230.0	-0.53	*
Cinnamomum verum	Leaf Essent. Oil	--	--		*
Cinnamomum verum	Stem Bark	--	--		*
Cinnamomum verum	Bark Essent. Oil	--	--		*
Cinnamomum verum	Leaf	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Cinnamomum camphora	Leaf	--	5.0	-0.31	*
Cinnamomum verum	Root Bark	--	--		*
Cistus ladaniferus	Plant	3.0	210.0	0.29	*
Citrus limon	Essential Oil	--	20.0	-0.59	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Citrus paradisi	Pericarp	1.0	2.0		*
Citrus aurantium	Leaf	1.0	20.0	-0.3	*
Citrus limon	Petiole	--	2.0		*
Citrus reticulata	Fruit	5.0	6.0	-0.57	*
Citrus aurantiifolia	Fruit	--	20.0	-0.57	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Citrus sinensis	Fruit	12.0	14.0	-0.57	*
Cleonia lusitanica	Leaf	1.0	2.0	-0.31	Perez-Alonso, M., Velasco-Negueruela, A., and Lopez-Saez, A. 1991. The Essential Oil of Cleonia lusitanica. <i>J. Ess. Oil Res.</i> , 3: 441-442.
Coleus barbatus	Stem Essent. Oil	--	94300.0		Jim Duke's personal files.
Coleus barbatus	Leaf Essent. Oil	--	94300.0	-0.5	Jim Duke's personal files.
Coriandrum sativum	Fruit	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Coriandrum sativum	Essential Oil	--	--		*
Coridothymus capitatus	Shoot	--	22.0	-0.25	Lagouri, V., Blekas, G., Tsimidou, M., Kokkini, S., and Boskou, D. 1993. Composition and Antioxidant Activity of Essential Oils from Oregano Plants Grown Wild in Greece. <i>Z. Lebensm Unters Forsch</i> 197: 20-23.
Cuminum cyminum	Seed Essent. Oil	--	8400.0	0.78	*
Cuminum cyminum	Seed	--	60.0	-0.92	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Cuminum cyminum	Fruit	--	60.0	-0.55	*

<i>Curcuma xanthorrhiza</i>	Rhizome	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<i>Curcuma longa</i>	Rhizome	--	1945.0	1.0	*
<i>Cymbopogon nardus</i>	Plant	24.0	96.0	-0.5	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Daucus carota</i>	Root	--	--		*
<i>Elettaria cardamomum</i>	Fruit	--	--		Duke, J. A. and duCellier, J. L. 1993. CRC Handbook of Alternative Cash Crops. CRC Press. Boca Raton, FL 33431. 536 pp. US \$312.50.
<i>Elsholtzia polystachya</i>	Leaf	--	2.4	-0.31	Mathela,C.S., Melkani,A.B., Bisht,J.C., Pant,A.K., Bestmann,H.J., Erler,J., Kobold,U., Rauscher,J. and Vostrowsky,O. 1992. Chemical Varieties of Essential Oils from <i>Elsholtzia polystachya</i> from Two Different Locations in India. <i>Planta Medica</i> 58: 376-379.
<i>Elsholtzia polystachya</i>	Leaf	--	--	-0.31	Mathela,C.S., Melkani,A.B., Bisht,J.C., Pant,A.K., Bestmann,H.J., Erler,J., Kobold,U., Rauscher,J. and Vostrowsky,O. 1992. Chemical Varieties of Essential Oils from <i>Elsholtzia polystachya</i> from Two Different Locations in India. <i>Planta Medica</i> 58: 376-379.
<i>Eucalyptus dealbata</i>	Shoot	--	695.0	1.46	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus botryoides</i>	Shoot	--	0.1	-0.31	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus bosistoana</i>	Shoot	--	120.0	-0.0	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus melanophloia</i>	Leaf	--	80.0	-0.26	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus <i>Eucalyptus</i> . Part VI. Subgenus <i>Sympyomyrtus</i> , Section <i>Adnataria</i> . <i>Flavour and Fragrance J.</i> 10(6):359-364
<i>Eucalyptus sideroxylon</i>	Shoot	--	530.0	1.04	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus fasiculosa</i>	Leaf	--	22.0	-0.3	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus <i>Eucalyptus</i> . Part VI. Subgenus <i>Sympyomyrtus</i> , Section <i>Adnataria</i> . <i>Flavour and Fragrance J.</i> 10(6):359-364
<i>Eucalyptus punctata</i>	Shoot	--	125.0	0.01	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus odorata</i>	Leaf	--	4.4	-0.31	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus <i>Eucalyptus</i> . Part VI. Subgenus <i>Sympyomyrtus</i> , Section <i>Adnataria</i> . <i>Flavour and Fragrance J.</i> 10(6):359-364
<i>Eucalyptus tereticornis</i>	Shoot	--	25.0	-0.25	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus occidentalis</i>	Shoot	--	0.1	-0.31	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus intertexta</i>	Leaf	--	5.5	-0.31	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus <i>Eucalyptus</i> . Part VI. Subgenus <i>Sympyomyrtus</i> , Section <i>Adnataria</i> . <i>Flavour and Fragrance J.</i> 10(6):359-364
<i>Eucalyptus maidenii</i>	Shoot	--	45.0	-0.2	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus largisparsa</i>	Leaf	--	4.6	-0.31	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus <i>Eucalyptus</i> . Part VI. Subgenus <i>Sympyomyrtus</i> , Section <i>Adnataria</i> . <i>Flavour and Fragrance J.</i> 10(6):359-364
<i>Eucalyptus globulus</i>	Shoot	--	3000.0	7.31	*
<i>Eucalyptus cladocalyx</i>	Shoot	--	80.0	-0.11	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus globulus</i>	Essential Oil	--	1000.0	-0.57	*
<i>Eucalyptus camaldulensis</i>	Shoot	--	225.0	0.26	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus citriodora</i>	Leaf Essent. Oil	--	1000.0	-0.86	*
<i>Eucalyptus dolichorhyncha</i>	Leaf	--	105.0	-0.24	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus <i>Eucalyptus</i> .Part I.Subgenus <i>Sympyomyrtus</i> ,Section <i>Dumaria</i> ,Series <i>Incrassatae</i> . <i>Flavour and Fragrance J.</i> 9(3):113-7
<i>Eucalyptus blakelyi</i>	Shoot	--	40.0	-0.21	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.
<i>Eucalyptus angulosa</i>	Leaf	--	3.0	-0.31	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus <i>Eucalyptus</i> .Part I.Subgenus <i>Sympyomyrtus</i> ,Section <i>Dumaria</i> ,Series <i>Incrassatae</i> . <i>Flavour and Fragrance J.</i> 9(3):113-7
<i>Eucalyptus siderophloia</i>	Shoot	--	11.0	-0.28	Zrira, S. S., Benjlali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven <i>Eucalyptus</i> Species Grown in Morocco. <i>Journal of Essential Oil Res.</i> 4: 259-264.

					western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subjenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus sparsa	Leaf	--	1555.0	0.79	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subjenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus stoatei	Leaf	--	21.0	-0.3	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7
Eucalyptus polyanthemos	Shoot	--	365.0	0.62	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus porosa	Leaf	--	865.0	0.3	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subjenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus moluccana	Shoot	--	0.1	-0.31	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus behriana	Leaf	--	2.7	-0.31	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subjenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus maculata	Shoot	--	30.0	-0.23	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus citriodora	Shoot	--	0.1	-0.31	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus globulus	Fruit Essent. Oil	--	83000.0	0.71	*
Eucalyptus forrestiana	Leaf	--	285.0	-0.11	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7
Eucalyptus diversicolor	Shoot	--	25.0	-0.25	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus brassiana	Leaf	--	--	-0.31	Singh, A. K., Gupta, K. C., & Brophy, J. J. 1991. Chemical Constituents of the Leaf Essential Oil of Eucalyptus brassiana S. T. Blake. Journal of Essential Oil Res. 3: 45-7.
Eucalyptus astringens	Shoot	--	0.1	-0.31	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus albens	Shoot	--	25.0	-0.25	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus leucoxylon	Leaf	--	22.0	-0.3	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subjenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus saligna	Shoot	--	12.0	-0.28	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus desquamata	Leaf	--	15.0	-0.3	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subjenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus tetraptera	Leaf	--	110.0	-0.24	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7
Eucalyptus populnea	Leaf	--	1.8	-0.31	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subjenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus sp	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Eucalyptus oviformis	Shoot	--	180.0	0.15	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus ochrophloia	Leaf	--	0.5	-0.31	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subjenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus melliodora	Shoot	--	170.0	0.12	Zriria, S. S., Benjilali, B. B., Fechtal, M. M., & Richard, H. H. 1991. Essential Oils of Twenty-seven Eucalyptus Species Grown in Morocco. Journal of Essential Oil Res. 4: 259-264.
Eucalyptus cuprea	Leaf	--	6.4	-0.31	Bignell, C.M., Dunlop, P.J., Brophy, J.J., and Jackson, J.F. 1995. Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus. Part VI. Subjenus Symphyomyrtus, Section Adnataria. Flavour and Fragrance J. 10(6):359-364
Eucalyptus incrassata	Leaf	--	205.0	-0.17	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Symphyomyrtus,Section Dumaria,Series Incrassatae.Flavour and Fragrance J.9(3):113-7
Eucalyptus globulus	Leaf	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
Eucalyptus	Leaf	--	6.0	-0.31	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western

					Sympyomyrtus,Section Dumaria, Series Incrassatae. Flavour and Fragrance J.9(3):113-7
Eucalyptus globulus	Leaf Essent. Oil	1000.0	343000.0	0.46	*
Eucalyptus erythrandra	Leaf	--	7.0	-0.31	Bignell,C.M.,Dunlop,P.J.,Brophy,J.J.,and Jackson, J.F.1994.Volatile Leaf Oils of Some South-western and Southern Australian Species of the Genus Eucalyptus.Part I.Subgenus Sympyomyrtus,Section Dumaria, Series Incrassatae. Flavour and Fragrance J.9(3):113-7
Eupatorium triplinerve	Plant	--	535.0	2.56	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Ferula assa-foetida	Essential Oil	--	--		*
Foeniculum vulgare	Plant	--	135.0	-0.23	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Foeniculum vulgare	Essential Oil	1000.0	198000.0	3.24	Jim Duke's personal files.
Foeniculum vulgare	Fruit	44.0	6600.0	2.75	*
Foeniculum vulgare	Seed	44.0	6600.0	1.25	*
Gossypium sp	Plant	--	--		*
Hypericum perforatum	Plant	0.3	5.4	-1.13	*
Hyptis suaveolens	Shoot	--	2.0	-0.3	Mallavarapu, G.R., Ramesh, S., Kaul, P.N., Bhattacharya, A.K., and Rao, B.R.R. 1993. The Essential Oil of <i>Hyptis suaveolens</i> (L.) Poit. J. Ess. Oil Res. 5: 321.
Hyptis suaveolens	Plant	--	285.0	0.82	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 74.
Hyptis suaveolens	Shoot	--	2.0	-0.3	Mallavarapu, G.R., Ramesh, S., Kaul, P.N., Bhattacharya, A.K., and Rao, B.R.R. 1993. The Essential Oil of <i>Hyptis suaveolens</i> (L.) Poit. J. Ess. Oil Res. 5: 321.
Hyssopus officinalis	Leaf	5.0	320.0	-0.09	*
Hyssopus officinalis	Essential Oil	--	--		*
Hyssopus officinalis	Flower	12.0	120.0	-1.0	Flavour and Fragrance Journal, 6: 69.
Illicium verum	Fruit	--	435.0	-0.36	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Juniperus communis	Essential Oil	--	--		*
Juniperus communis	Fruit	26.0	300.0	-0.43	*
Laurus nobilis	Leaf	--	120.0	-0.23	*
Laurus nobilis	Fruit Essent. Oil	--	100700.0	1.19	*
Laurus nobilis	Leaf Essent. Oil	--	--		*
Lavandula latifolia	Plant	2.0	13.0	-1.08	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Lepechinia calycina	Plant	30.0	50.0	-0.82	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Levisticum officinale	Root	1.0	10.0		*
Lindera benzoin	Fruit	2300.0	3135.0	1.0	*
Lindera benzoin	Leaf	--	0.1	-0.31	*
Mangifera indica	Flower	--	--		*
Melaleuca bracteata	Leaf	120.0	500.0	0.04	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
Melaleuca alternifolia	Essential Oil	--	19000.0	-0.23	*
Melaleuca alternifolia	Leaf	10.0	50.0	-0.28	*
Mentha pulegium	Plant	30.0	60.0	-0.75	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Mentha longifolia	Shoot	11.0	70.0	-0.13	Planta Medica, 57: A83, 1991.
Mentha pulegium	Essential	--	3000.0	-0.53	*

<i>Mentha x rotundifolia</i>	Leaf	16.0	280.0	-0.12	*
<i>Micromeria varia</i>	Shoot	--	--		*
<i>Micromeria teneriffae</i>	Leaf	--	20.0	-0.3	Kirimer, N., Ozek, T., and Baser, K.H.C. 1991. Composition of the Essential Oil of <i>Micromeria congesta</i> . <i>J. Ess. Oil Res.</i> , 3: 387-393.
<i>Micromeria varia</i>	Shoot	--	--	-0.31	Pedro, L.G., et al. 1995. Composition of the Essential oil of <i>Micromeria varia</i> Benth. ssp. <i>thymoides</i> (Sol. ex Lowe) Perez var. <i>thymoides</i> , and endemic species of the Madeira Archipelago. <i>flav. & Fragr. J.</i> 10(3): 199-202.
<i>Muraya koenigii</i>	Leaf	23.0	6240.0	4.11	*
<i>Myrciaria dubia</i>	Fruit	--	--		*
<i>Myristica fragrans</i>	Seed Essent. Oil	4000.0	10000.0	1.19	*
<i>Myristica fragrans</i>	Seed	180.0	1440.0	-0.46	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980</i> .
<i>Myristica fragrans</i>	Essential Oil	7000.0	16000.0	-0.28	*
<i>Myristica fragrans</i>	Leaf Essent. Oil	--	--		*
<i>Myrtus communis</i>	Shoot	1.0	10.0	-0.28	*
<i>Nepeta racemosa</i>	Shoot	--	0.1	-0.31	Baser, K.H.C., Ozek, T., Akgul, A. and Tumen, G. 1993. Composition of the Essential Oil of <i>Nepeta racemosa</i> Lam. <i>J. Ess. Oil Res.</i> 5: 215-7.
<i>Nepeta racemosa</i>	Shoot	--	--		Baser, K.H.C., Ozek, T., Akgul, A. and Tumen, G. 1993. Composition of the Essential Oil of <i>Nepeta racemosa</i> Lam. <i>J. Ess. Oil Res.</i> 5: 215-7.
<i>Ocimum gratissimum</i>	Plant	10.0	125.0	-0.3	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980</i> .
<i>Origanum syriacum</i>	Shoot	--	40.0	-0.21	Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of <i>Origanum syriacum</i> L. <i>Essential Oil. J. Ess. Oil Res.</i> 3: 121-123.
<i>Origanum majorana</i>	Plant	18.0	103.0	-0.45	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980</i> .
<i>Origanum vulgare</i>	Essential Oil	--	24400.0	-0.12	*
<i>Origanum vulgare</i>	Shoot	--	45.0	-0.2	Lagouri, V., Blekas, G., Tsirimidou, M., Kokkini, S., and Boskou, D. 1993. Composition and Antioxidant Activity of Essential Oils from Oregano Plants Grown Wild in Greece. <i>Z. Lebensm Unters Forsch</i> 197: 20-23.
<i>Origanum syriacum</i>	Shoot	--	12.0	-0.28	Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of <i>Origanum syriacum</i> L. <i>Essential Oil. J. Ess. Oil Res.</i> 3: 121-123.
<i>Origanum onites</i>	Shoot	--	45.0	-0.2	Biondi, D., Cianci, P., Geraci, C. and Ruberto, G. 1993. Antimicrobial Activity and Chemical Composition of Essential Oils from Sicilian Aromatic Plants. <i>Flav. & Fragr. J.</i> 8: 331-7.
<i>Origanum majorana</i>	Essential Oil	--	26000.0	-0.09	*
<i>Origanum syriacum</i>	Shoot	--	12.0	-0.28	Fleisher, A. & Fleisher, Z. 1991. Chemical Composition of <i>Origanum syriacum</i> L. <i>Essential Oil. J. Ess. Oil Res.</i> 3: 121-123.
<i>Origanum onites</i>	Shoot	--	45.0	-0.2	Biondi, D., Cianci, P., Geraci, C. and Ruberto, G. 1993. Antimicrobial Activity and Chemical Composition of Essential Oils from Sicilian Aromatic Plants. <i>Flav. & Fragr. J.</i> 8: 331-7.
<i>Origanum vulgare</i>	Shoot Essent. Oil	--	700.0	-0.71	*
<i>Origanum vulgare</i>	Plant	2.0	244.0	0.53	*
<i>Panax ginseng</i>	Root	--	--		*
<i>Panax ginseng</i>	Plant	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp.
<i>Panax ginseng</i>	Root Essent. Oil	--	--		*
<i>Pastinaca sativa</i>	Root	--	--		*
<i>Pelargonium citrosum</i>	Shoot	--	22.0	-0.25	Matsuda, B. M., et al. 1996. Essential Oil Analysis and Field Evaluation of the Citrosa Plant 'Pelargonium citrosum' as a Repellent Against Populations of <i>Aedes</i> Mosquitoes. <i>J. Am. Mosq. Contr. Assoc.</i> 12(1):69-74.
<i>Pelargonium graveolens</i>	Essential Oil	--	--		*
<i>Perilla frutescens</i>	Shoot Essent. Oil	--	--		Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.

crispum						
Petroselinum crispum	Seed Essent. Oil	--	1000.0	-1.11	*	
Petroselinum crispum	Leaf	--	4.3	-0.31	*	
Petroselinum crispum	Fruit Essent. Oil	3000.0	7300.0	-1.33	*	
Peumus boldus	Leaf	--	12.0	-0.31	*	
Pimenta dioica	Leaf	--	59.0	-0.27	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.	
Pimenta racemosa	Leaf	--	950.0	0.36	*	
Pimenta dioica	Leaf Essent. Oil	--	--		*	
Pimenta dioica	Fruit	--	6.0	-0.57	*	
Pinus sylvestris	Leaf Essent. Oil	--	--		*	
Pinus mugo	Leaf	--	--		Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.	
Pinus sylvestris	Essential Oil	--	--		*	
Pinus sylvestris	Leaf	--	--		Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.	
Piper cubeba	Fruit Essent. Oil	--	--		*	
Piper cubeba	Fruit	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.	
Piper auritum	Leaf	--	--		Tramil	
Piper cubeba	Plant	--	--		*	
Piper nigrum	Seed Essent. Oil	--	--		*	
Piper nigrum	Fruit Essent. Oil	6800.0	36000.0	-0.56	*	
Porophyllum ruderale	Plant	3.0	4.0	-1.14	Loayza, I., de Groot, W., Lorenzo, D. et al. 1999. Composition of the essential oil of Porophyllum ruderale (Jacq.) Cass. from Bolivia. Flav. & Fragr. J. 14: 393-8.	
Prunella vulgaris	Plant	--	280.0	0.78	*	
Pycnanthemum curvipes	Shoot	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.	
Pycnanthemum tenuifolium	Shoot	2.0	420.0	0.76	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.	
Rosmarinus eriocalyx	Shoot	44.0	150.0	0.07	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.	
Rosmarinus officinalis	Shoot	50.0	125.0	0.01	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.	
Rosmarinus officinalis	Leaf	--	6.0	-0.31	Soliman, F.M., El-Kashoury, M.M., Fathy, M.M. and Gonaid, M.H. 1994. Analysis and Biological Activity of the Essential Oil of Rosmarinus officinalis L. from Egypt. Flavour and Fragrance J. 9: 29-33.	
Rosmarinus officinalis	Resin, Exudate, Sap	--	--		*	
Rosmarinus tomentosus	Shoot	0.1	10.0	-0.28	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.	
Rosmarinus officinalis	Shoot	--	50.0	-0.18	Tucker, A. O. and Maciarelli, M. J. 1998. The essential oils of some rosemary cultivars. Flavor and Fragrance Journal, 1: 137-142. 1986.	
Rosmarinus officinalis	Leaf	--	6.0	-0.31	Soliman, F.M., El-Kashoury, M.M., Fathy, M.M. and Gonaid, M.H. 1994. Analysis and Biological Activity of the Essential Oil of Rosmarinus officinalis L. from Egypt. Flavour and Fragrance J. 9: 29-33.	
Rosmarinus x mendizabalii	Shoot	4.0	22.0	-0.25	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. J. Ess. Oil Res. 5: 243-246.	
Rosmarinus officinalis	Shoot Essent.	--	3800.0	-0.7	*	

Rosmarinus eriocalyx	Shoot	44.0	150.0	0.07	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. <i>J. Ess. Oil Res.</i> 5: 243-246.
Rosmarinus officinalis	Shoot	19.0	50.0	-0.18	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. <i>J. Ess. Oil Res.</i> 5: 243-246.
Rosmarinus officinalis	Plant	0.1	133.0	-0.24	*
Rosmarinus officinalis	Leaf Essent. Oil	--	1000.0	-0.86	*
Rosmarinus x lavandulaceus	Shoot	13.0	220.0	0.25	Soriano Cano, M.C., Sotomayor Sanchez, J.A., Sanchez Gomez, P. and Garcia Vallejo, M.C. 1993. Essential Oils of the Rosmarinus eriocalyx-tomentosus Complex in Southeast Spain. <i>J. Ess. Oil Res.</i> 5: 243-246.
Salvia officinalis	Essential Oil	--	--		*
Salvia canariensis	Leaf	--	0.1	-0.31	Casnigueral,S., Iglesias,J., Vila,R., Virgili,A. and Ibanez,C.1994. The Essential Oil from Leaves of Salvia canariensis L. <i>Flav. & Frag. J.</i> 9:201-204. S. Canigueral, Facultat de Farmacia, Universitat de Barcelona, Ave.Diagonal 643,E-08028, Barcelone Spain
Salvia officinalis	Leaf Essent. Oil	--	--		*
Salvia officinalis	Leaf	--	--		Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Salvia dorisiana	Shoot	0.5	2.1	-0.3	Tucker, A.O. & Maciarello, M.J. 1994. The Essential Oil of Salvia dorisiana Standley. <i>J. Ess. Oil Res.</i> 6: 97-8.
Sassafras albidum	Root	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Sassafras albidum	Leaf	1.0	6.1	-0.31	*
Satureja obovata	Shoot	1.0	30.0	-0.23	Fitoterapia No.60: 277.
Satureja obovata	Leaf	--	--		Arrebola, M.L., Navaro, M.C., Jimenez, J. and Ocana, F.A. 1994. Variations in Yield and Composition of the Essential Oil of Satureja obovata. <i>Phytochemistry</i> 35(1): 83.
Satureja thymbra	Shoot	--	75.0	-0.12	Lagouri, V., Blekas, G., Tsimidou, M., Kokkini, S., and Boskou, D. 1993. Composition and Antioxidant Activity of Essential Oils from Oregano Plants Grown Wild in Greece. <i>Z. Lebensm Unters Forsch</i> 197: 20-23.
Satureja obovata	Leaf	--	265.0	-0.13	Arrebola, M.L., Navaro, M.C., Jimenez, J. and Ocana, F.A. 1994. Variations in Yield and Composition of the Essential Oil of Satureja obovata. <i>Phytochemistry</i> 35(1): 83.
Satureja obovata	Leaf	--	265.0	-0.13	Arrebola, M.L., Navaro, M.C., Jimenez, J. and Ocana, F.A. 1994. Variations in Yield and Composition of the Essential Oil of Satureja obovata. <i>Phytochemistry</i> 35(1): 83.
Satureja cilicica	Shoot	--	1.0	-0.31	Tumen, G. Baser, K.H.C. and Kirimer, N. 1993. The Essential Oil of Satureja cilicica P.H. Davis. <i>J. Ess. Oil Res.</i> 5: 547-548.
Satureja obovata	Leaf	--	220.0	-0.16	Arrebola, M.L., Navaro, M.C., Jimenez, J. and Ocana, F.A. 1994. Variations in Yield and Composition of the Essential Oil of Satureja obovata. <i>Phytochemistry</i> 35(1): 83.
Satureja montana	Plant	1.0	325.0	1.1	*
Saussurea lappa	Root Essent. Oil	--	--		*
Sideritis pauli	Shoot	--	26.0	-0.24	Burzaco, A., Velasco-Negueruela, A. and Perez-Alonso, M.J. 1992. Essential Oil Analysis of Sideritis pauli Pau. <i>FFJ7:</i> 47-8. 1992.
Sideritis mugronensis	Leaf	5.0	10.0	-0.31	Manez, S., Jimenez, A., and Villar, A. 1991. Volatiles of Sideritis mugronensis Flower and Leaf. <i>J. Ess. Oil Res.</i> , 3: 395-397.
Sideritis mugronensis	Flower	35.0	270.0	1.0	Manez, S., Jimenez, A., and Villar, A. 1991. Volatiles of Sideritis mugronensis Flower and Leaf. <i>J. Ess. Oil Res.</i> , 3: 395-397.
Tanacetum parthenium	Essential Oil	--	6000.0	-0.48	*
Teucrium salviastrum	Shoot	--	0.11	-0.31	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
Teucrium oxylepis	Shoot	--	0.27	-0.31	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
Teucrium pseudoscorodonia	Shoot	--	0.24	-0.31	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
Teucrium oxylepis	Shoot	--	0.22	-0.31	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
Teucrium asiaticum	Shoot	--	0.17	-0.31	Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from the Iberian Peninsula and the Balearic Islands. <i>Phytochemistry</i> 29(4): 1165-9.
Teucrium	Shoot	--	--		Velasco-Negueruela, A. and Perez-Alonso, M.J. 1990. The Volatiles of Six Teucrium Species from

<i>Thymus capitatus</i>	Plant	1.0	80.0	-0.61	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
<i>Thymus vulgaris</i>	Plant	50.0	425.0	1.79	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
<i>Thymus riatarum</i>	Shoot	--	25.0	-0.25	Iglesias, J., Vila, R., Canigueral, S., Bellakdhar, and Idrissi, A. 1991. Analysis of the Essential Oil of <i>Thymus riatarum</i> . <i>J. Ess. Oil Res.</i> 3: 43-4.
<i>Thymus vulgaris</i>	Essential Oil	--	12500.0	-0.35	*
<i>Thymus capitatus</i>	Shoot	--	7.0	-0.29	Biondi, D., Cianci, P., Geraci, C. and Ruberto, G. 1993. Antimicrobial Activity and Chemical Composition of Essential Oils from Sicilian Aromatic Plants. <i>Flav. & Frag. J.</i> 8: 331-7.
<i>Trachyspermum ammi</i>	Plant	--	--		*
<i>Trichostemma dichotomum</i>	Shoot	--	0.6	-0.31	Tucker, A.O. and Maciarello, M.J. 1990. The Essential Oil of <i>Trichostemma dichotomum</i> . <i>J. Ess. Oil Res.</i> 2: 149-150.
<i>Tsuga canadensis</i>	Branches	--	--		*
<i>Umbellularia californica</i>	Plant	20.0	80.0	-0.61	*
<i>Zingiber officinale</i>	Rhizome	3.0	200.0	-1.0	*
<i>Zingiber officinale</i>	Rhizome Essent. Oil	--	4000.0		*